Visual Resource Evaluation Report

Proposed Wireless Telecommunications Facility

Route 44
(Ashford Center Road)
Ashford, Connecticut

Prepared for verizon wireless

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Visual Resource Evaluation

Cellco Partnership (dba Verizon Wireless) seeks approval from the Connecticut Siting Council for a Certificate of Environmental Compatibility and Public Need for the construction of a wireless telecommunications facility ("Facility") to be located on property south of Route 44 (Ashford Center Road) in the Town of Ashford, Connecticut (identified herein as the "host property"). This Visual Resource Evaluation was conducted to evaluate the visibility of the proposed Facility within a two-mile radius ("Study Area").

Project Introduction

The proposed Facility includes the construction of a 120-foot tall monopole and installation of associated ground equipment to be located within a 70-foot by 70-foot fenced enclosure at the base of the tower. The monopole will be designed to accommodate up to four antenna platforms. Based on information provided by the Site engineers, Dewberry-Goodkind, the proposed project area is located at ±588 feet above mean sea level (AMSL). Access to the proposed Facility would initially follow an existing driveway and parking area south of Route 44 then extend approximately 100 feet in a southerly direction to the proposed project area.

Site Description and Setting

The host property includes approximately 1.96-acres of land and is currently occupied by a restaurant and associated driveway and parking area. The proposed Facility would be situated on a cleared portion of the host property beyond the paved parking area, approximately 140 feet south of the existing restaurant building. The Photolog Documentation Map contained in Attachment A depicts the location of the proposed Facility. A photograph of the proposed project area is also included in Attachment A. Land use within the general vicinity of the proposed Facility is comprised of commercial and agriculture properties and low-density residential development with large tracts of woodlands located further to the north, south, east and west. Segments of Route 44 and Route 89 traverse various portions of the Study Area. In total, the Study Area contains roughly 40 linear miles of roadways.

The topography in the Study Area is generally characterized by rolling hills that range in ground elevation from approximately 450 feet AMSL to nearly 800 feet AMSL. The tree cover within the Study Area consists mainly of mixed deciduous hardwood species interspersed with stands of mature evergreens. The tree canopy occupies approximately 6,969acres of the 8,042-acre study area (87%). During the in-field activities associated with this analysis, an infrared laser range finder was used to accurately determine the average tree canopy height throughout the Study Area. Numerous trees were selected for measurement and the average tree canopy established, in this case 65 feet. Lastly, the Study Area features

approximately 116 acres of surface water, which includes Poole Pond and portions of the Mount Hope River.

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METHODOLOGY

To estimate the visibility associated with the proposed Facility, VHB incorporates a two-fold approach utilizing both a predictive computer model and in-field analysis. The predictive model is employed to assess potential visibility throughout the entire Study Area, including private property and/or otherwise inaccessible areas for field verification. A "balloon float" and Study Area drive-through reconnaissance are also conducted to obtain locational and height representations, back-check the initial computer model results and provide photographic documentation from publicly accessible areas. Results of both activities are analyzed and incorporated into the final viewshed map. A description of the methodologies used in the analysis is provided below.

Visibility Analysis

Using ESRI's ArcView® Spatial Analyst, a computer modeling tool, the areas from where the proposed Facility is expected to be visible are calculated. This is based on information entered into the computer model, including Facility height, its ground elevation, the surrounding topography, existing vegetation and any significant structures/objects that may act to obstruct potential views. Data incorporated in the model includes 7.5 minute digital elevation models (DEMs) and a digital forest layer for the Study Area. The DEMs were produced by the United States Geological Survey (USGS) in 1982 at a 30 meter resolution. The forest layer was derived through on-screen digitizing in ArcView® GIS from 2000 and 2005 digital orthophotos with 1-meter and 2-meter pixel resolutions, respectively.

Once the data are entered, a series of constraints are applied to the computer model to achieve an estimate of where the Facility will be visible. Initially, only topography is used as a visual constraint; the tree canopy is omitted to evaluate all areas of potential visibility without any vegetative screening. Although this is an overly conservative prediction, the initial omission of this layers provides a reference for comparison once the tree canopy is established and also assists in the evaluation of potential seasonal visibility of the proposed Facility. An estimated tree canopy height of 50 feet is then used to prepare a preliminary viewshed map for use during the Study Area reconnaissance. The average height of the tree canopy, in this case 65 feet, is determined in the field using a hand-held infra-red laser range finder. The forested areas within the Study Area were then overlaid on the DEM with a height of 65 feet added and the visibility calculated. The forested areas are then extracted from the areas of visibility, with the assumption that a person standing among the trees will not be able to view the Facility beyond a distance of approximately 500 feet. Depending on the density of the vegetation in these areas, it is assumed that some locations within this

range will provide visibility of at least portions of the Facility based on where one is standing.

Also included on the map is a data layer, obtained from the Connecticut State Department of Environmental Protection (CTDEP), which depicts various land and water resources such as state parks and forests, recreational facilities, dedicated open space and CTDEP boat launches and other categories. This layer is useful in identifying potential visual impacts to any sensitive receptors that may be located within the Study Area. Lastly, based on a review of available data published by the Connecticut Department of Transportation and discussions with municipal staff in Ashford, it was determined that there are no a state or locally-designated scenic roadways within the Study Area.

A preliminary viewshed map is generated for use during the in-field activity in order to confirm that no significant land use changes have occurred since the aerial photographs used in this analysis were produced and to verify the results of the model in comparison to the balloon float. Information obtained during the reconnaissance is then incorporated into the final visibility map.

Balloon Float and Study Area Reconnaissance

On March 30, 2007 Vanasse Hangen Brustlin Inc., (VHB) conducted a balloon float at the proposed Facility in order to evaluate the potential viewshed within the Study Area. The balloon float consisted of tethering an approximate four-foot diameter, helium-filled weather balloon at the proposed Site location at a height of 120 feet. Once the balloon was aloft, VHB personnel drove the public road system in the Study Area to inventory those areas where the balloon was visible. During the balloon float, weather conditions were mostly sunny with occasional light breezes. Temperatures during the float ranged between 40 and 45 degrees Farhenheight.

Photographic Documentation

During the balloon float, VHB staff conducted a drive-by reconnaissance along the roads located within the Study Area with an emphasis on residential areas and other potential sensitive receptors in order to evaluate and refine the results of the preliminary viewshed map and to verify where the balloon was, and was not, visible above and/or through the tree canopy. The balloon was photographed from several different vantage points to document the actual view towards the proposed Facility. The locations and orientations of the photos are depicted on photolog documentation map contained in Attachment A and are described below:

1. View from Route 44 (Ashford Center Road) adjacent to house #84.
2. View from Route 44 (Ashford Center Road) east of Ward Cemetery.

3. View from access drive to Birch Hill Apartments at #149 Route 44 (Ashford Center Road).

Photographs of the balloon from the view points listed above were taken with a Panasonic Digital Camera DMC-FZ5, which has a lens focal length equivalent to a 35 mm camera with a 38 to 115 mm zoom. "The lens that most closely approximates the view of the unaided human eye is known as the normal focal-length lens. For the 35 mm camera format, which gives a 24x36 mm image, the normal focal length is about 50 mm.[1]" The optical zoom lens for the Panasonic DMC-FZ5 was set at a range of 50 mm to 70 mm for the purposes of this Visual Resource Evaluation.

The locations of the photographic points are recorded in the field using a hand held GPS receiver and are subsequently plotted on the maps contained in the attachments to this document.

Photographic Simulation

Photographic Simulations were generated for the three locations described above. The Photographic Simulations represent a scaled depiction of the proposed monopole from these locations. The height of the Facility is determined based on the location of the balloon in the photographs and a proportional platform-mounted monopole image is simulated into the photographs. The simulations are contained in Attachment A.

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CONCLUSIONS

Based on this analysis, areas from where the proposed 120-foot monopole could be visible above the tree canopy comprise approximately 12 acres, or less than one half of one percent of the 8,042-acre Study Area. As depicted on the attached viewshed map (Attachment B), the year-round visibility associated with the proposed Facility is confined to the immediate vicinity of the project area, extending approximately 0.10-mile to the north/northeast along select portions of Route 44. As evidenced by both the results of the predictive computer model and observations made in the field during the conduct of the balloon float, the overall visibility associated with the proposed facility is minimal. VHB estimates that partial year-round views may be achieved from portions of three nearby residential properties. Potential year-round views of the proposed facility are limited by the topography and extensive vegetative cover contained within the Study Area. The viewshed map also depicts additional areas where seasonal (i.e. during "leaf off" conditions) views through the trees are anticipated. These areas comprise approximately 16 additional acres and are mostly limited

[1] Warren, Bruce. *Photography*, West Publishing Company, Eagan, MN, c. 1993, (page 70).

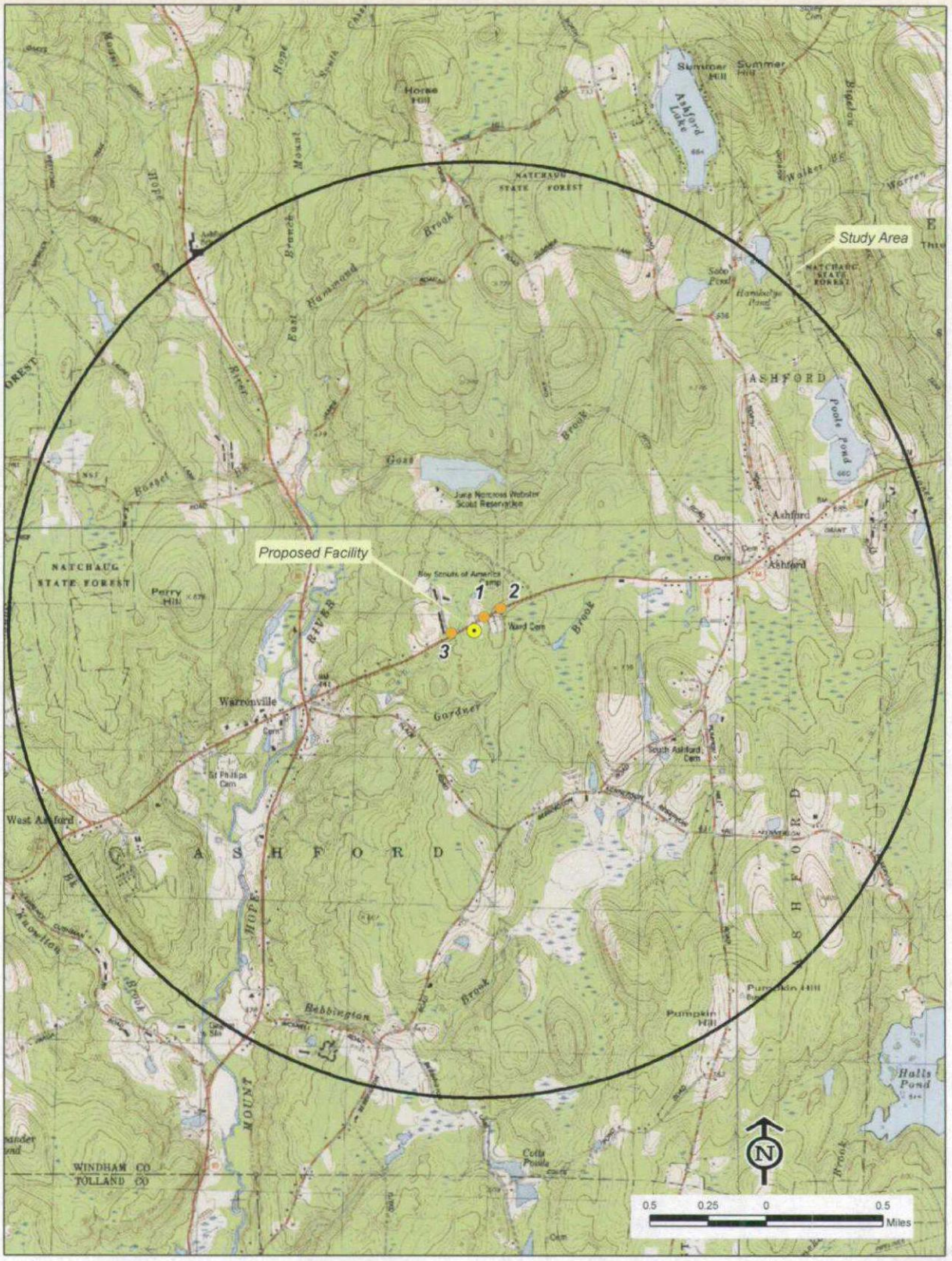
to the immediate vicinity of the proposed Facility, generally within approximately 0.25 mile of the host property. In total, VHB anticipates that approximately three adjacent residences could achieve seasonal views of the proposed Facility from select portions of their respective properties.

Attachment A

Photolog Documentation Map, Project Area Photograp, Balloon Float Photographs and Photographic Simulations

Photolog Documentation

Town of
Ashford
Connecticut



Vanasse Hangen Brustlin, Inc.

Photographic Documentation

Town of
Ashford
Connecticut

Route 44
Ashford, Connecticut

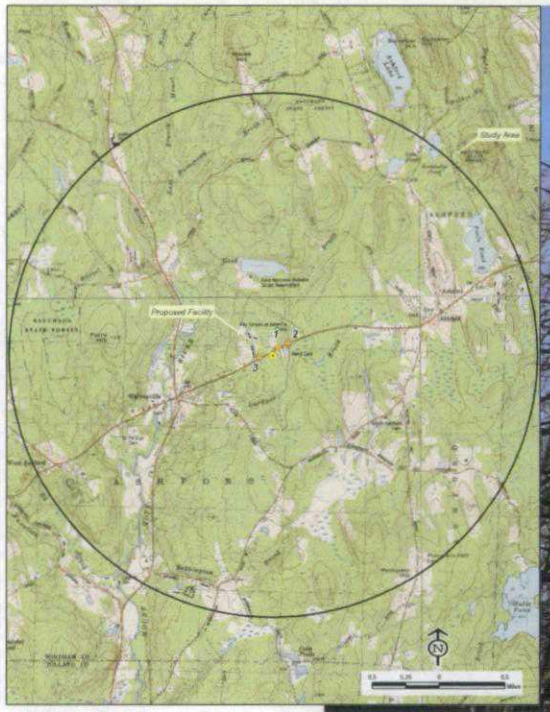
Monopole installation
with 4 carriers

PROPOSED PROJECT AREA

Vanasse Hangen Brustlin, Inc.

Photographic Documentation and Simulation *View 1*

Town of
Ashford
Connecticut



Route 44
Ashford, Connecticut

Monopole installation
with 4 carriers

PHOTO TAKEN FROM ROUTE 44 (ASHFORD CENTER ROAD) ADJACENT TO HOUSE #84, LOOKING SOUTHWEST

DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 500 FEET +/-

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Photographic Documentation and Simulation *View 2*

Town of
Ashford
Connecticut

Route 44
Ashford, Connecticut

Monopole installation
with 4 carriers

PHOTO TAKEN FROM ROUTE 44 (ASHFORD CENTER ROAD) EAST OF WARD CEMETERY, LOOKING SOUTHWEST - BALLOON IS VISIBLE THROUGH TREES

DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.16 MILE +/-

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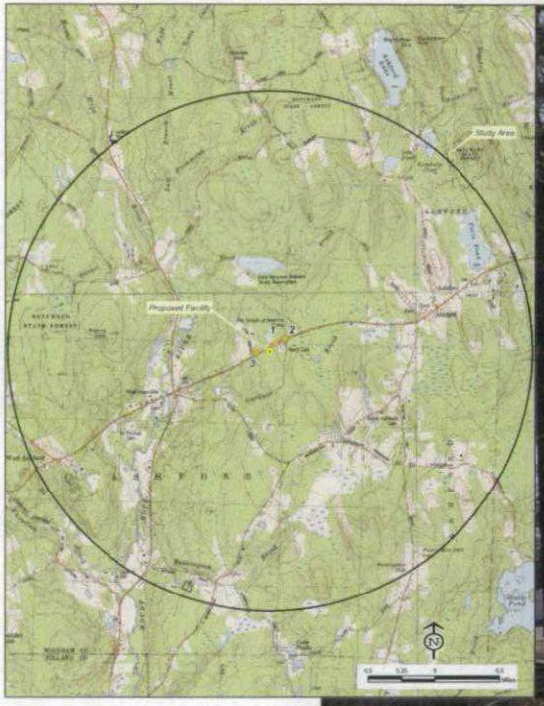
Photographic Documentation and Simulation *View 3*

Town of
Ashford
Connecticut



Route 44
Ashford, Connecticut

Monopole installation
with 4 carriers

PHOTO TAKEN FROM ACCESS DRIVE TO BIRCH HILL APARTMENTS AT #149 ASHFORD CENTER ROAD (ROUTE 44), LOOKING SOUTHEAST

DISTANCE FROM THE PHOTOGRAPH LOCATION TO THE PROPOSED SITE IS 0.10 MILE +/-

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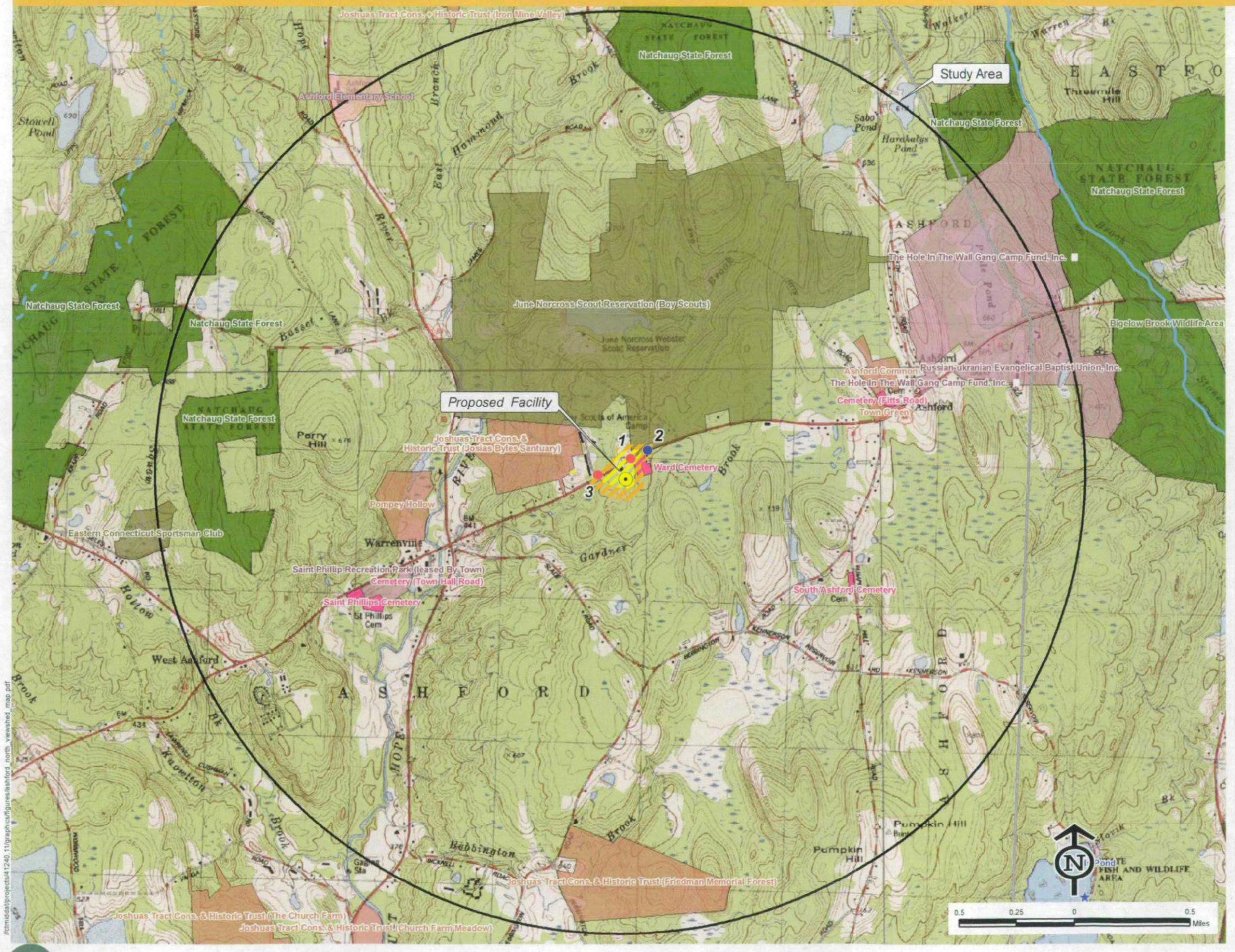
Attachment B

Viewshed Map

Viewshed Map

Topography and Forest Cover as Constraints

Town of Ashford Connecticut



Proposed Verizon Wireless Telecommunications Facility
Ashford North
Route 44
Ashford, Connecticut

NOTE:
- Viewshed analysis conducted using ESRI's Spatial Analyst.
- Proposed Facility height is 120 feet.
- Existing tree canopy height estimated at 65 feet.

DATA SOURCES:
- 7.5 minute digital elevation model (DEM) with 30 meter resolution produced by the USGS, 1982
- Forest areas derived from 2000 and 2005 digital orthophotos with 1 meter and 2 meter pixel resolution, respectively; digitized by VHB, 2006
- Base map comprised of Westford, Eastford, Hampton, and Spring Hill USGS Quadrangle Maps
- Protected properties data layer provided CTDEP, 2003
- Scenic Roads layer derived from available State and Local listings.

Map Compiled May 2007

Legend

- Proposed Monopole Location (Includes select areas of visibility approximately 500 feet around facility)

Photos - March 30, 2007
- Balloon visible above trees
- Balloon visible through trees

- Year Round Visibility (Approximately 12 Acres)
- Anticipated Seasonal Visibility (Approximately 16 Acres)

Protected Properties (Municipal)
- Cemetery
- Preservation
- Conservation
- Existing Preserved Open Space
- Recreation
- General Recreation
- School
- Uncategorized

Protected Properties (CT DEP)
- State Forest
- State Park
- DEP Owned Waterbody
- State Park Scenic Reserve
- Historic Preserve
- Natural Area Preserve
- Fish Hatchery
- Flood Control
- Other
- State Park Trail
- Water Access
- Wildlife Area
- Wildlife Sanctuary

- DEP Boat Launches
- Natchaug Trail (CT Blue Blaze)
- Nipmuck Trail (CT Blue Blaze)
- Scenic Road (State and Local)
- Town Line
- Protected Properties (Federal)

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Transportation | Land Development | Environmental Services

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